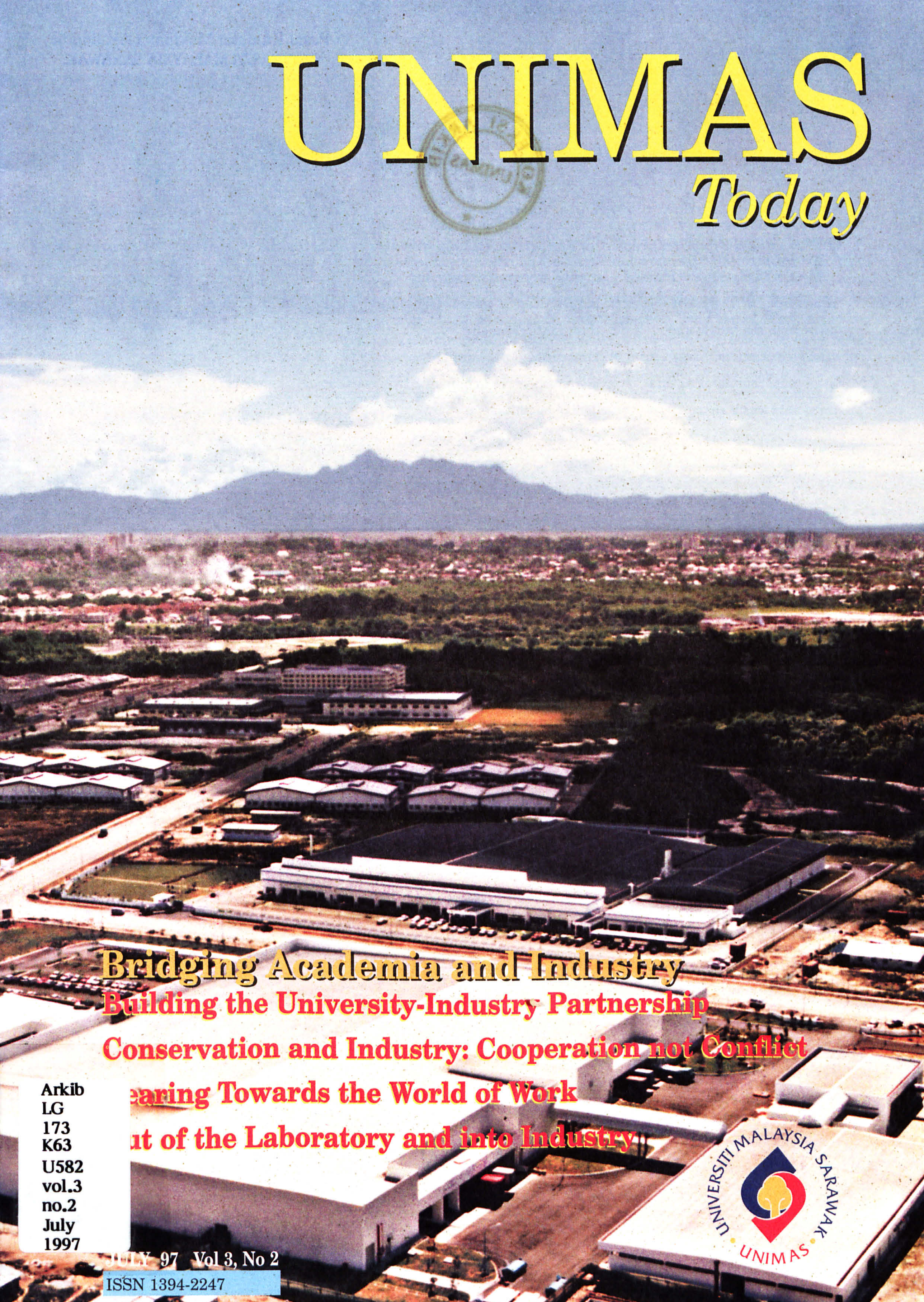
UNIMAS *Today*



Bridging Academia and Industry

Building the University-Industry Partnership

Conservation and Industry: Cooperation not Conflict

earing Towards the World of Work

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Pusat Khidmat Maklumat Akademik
UNIVERSITI MALAYSIA SARAWAK.

KOLEKSI ARKIB
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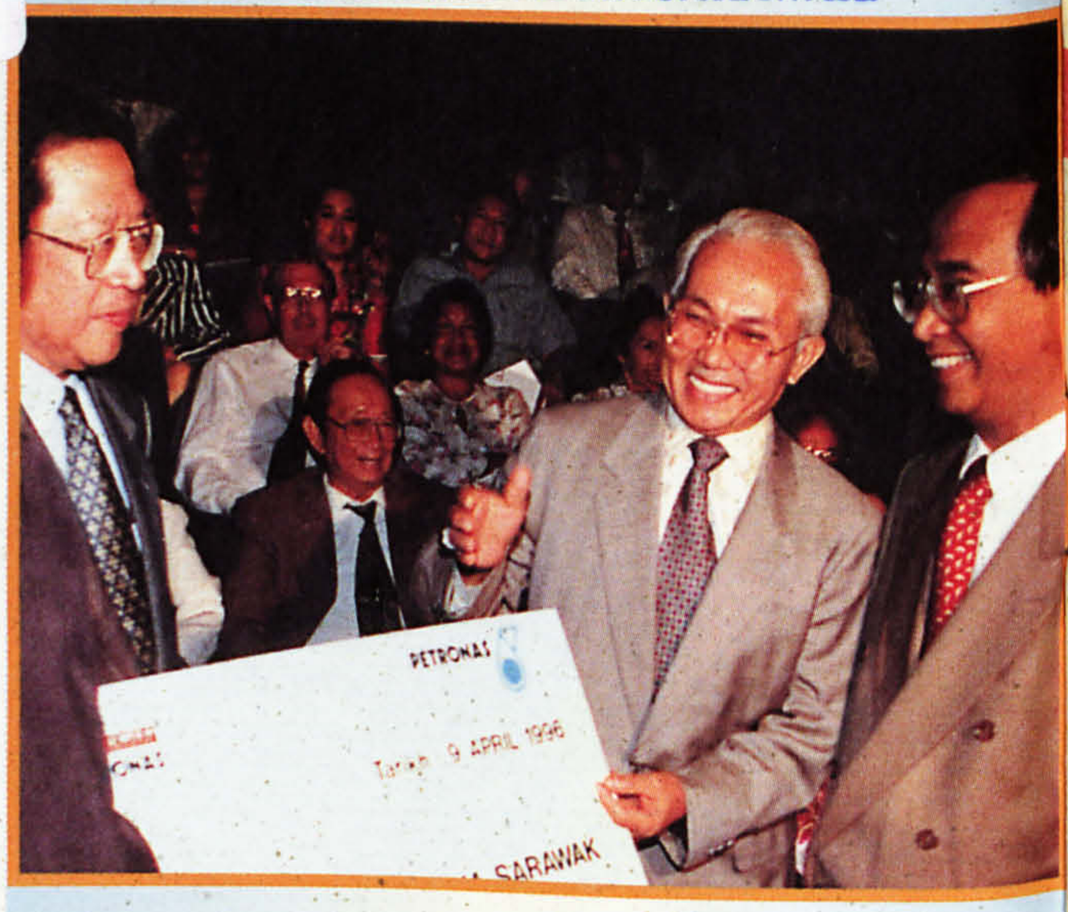
From the Vice-Chancellor's *Desk*

There was a time when the tendency was for universities to be located away from the hustle and bustle of cities and hence, away from communities. In a sense this was a change from the earlier town-based Oxbridge model. Such a move was ironical as it perpetuated the ivory tower idea, widening the gulf between academics and industry. This is an accusation which is still levelled at some universities, but it is recognised today that universities cannot function without the community.

The cultural divide between university and industry can lead to a distorted image of one by the other. Industry is seen to seek quick returns on investments, a short term outlook which universities find less acceptable. The university is seen to pursue knowledge over a longer time frame, which industry finds economically less attractive.

However, this issue of UNIMAS Today is not drawn into the discussion of these cultural differences. Rather, it highlights the common ground where university and industry can co-operate for their mutual benefit. Universities today are far more responsive to industry demands; indeed our curricula increasingly reflect the needs of industry. More graduate programmes are moving away from former traditions and are beginning to contribute directly to the needs of development and the market. In fact, many research initiatives are often motivated by industrial applications.

While universities should not be dictated to by market forces, financial constraints have begun to push them into becoming more market driven in their approaches to teaching-learning, research and services. Universities must continue to persevere in their role as knowledge seekers, critical thinkers and agents of change. The challenge is therefore to balance a wider scope of activities encom-passing education, research, as well as the dessemination and the application of knowledge.



INTRODUCING

The Pro-Chancellor

Datuk Patinggi Tan Sri Haji Abdul Taib Mahmud, the Chief Minister of Sarawak has been appointed Universiti Malaysia Sarawak's first Pro-Chancellor.

This appointment is a fitting acknowledgement of Datuk Patinggi Tan Sri Haji Abdul Taib Mahmud's significant role in the development of Sarawak over the course of his distinguished political career which began in 1963. Over the following three decades, he has held a range of ministerial appointments, at both Federal and State levels.

The rapid development of Sarawak, traditionally known for its rich natural resources, now increasingly also hinges on its ability to fully utilise these into industries which will yield greater added value. The role of technology, human resource development and research will be invaluable in enhancing the competitiveness of the State and Universiti Malaysia Sarawak is a key element in the achievement of these goals. Hence the appointment of Datuk Patinggi Tan Sri Haji Abdul Taib Mahmud as Pro-Chancellor is timely as it is a recognition of the vital role of education in the continued development of the State.

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UNIVERSITI MALAYSIA SARAWAK

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BUILDING THE UNIVERSITY-INDUSTRY PARTNERSHIP

Ghazally Ismail

The last decade has seen a remarkable shift in the attitude of academia towards business and industry. With the corporatisation of institutes of higher education just around the corner, universities in Malaysia have begun to embrace market-oriented planning and reforms. They now recognize how important it is for universities to participate in economic development and to be competitive in the international arena. However, the general reaction to this shift has not always been positive. Universities have been criticized for "selling out", instead of carrying on their primary function of creating new knowledge. They appear to have succumbed to the pressures of the market and seem "content" only with the application of existing knowledge for economic gain - thus merely *kowtowing* to the needs of industry.

Such criticism presents an awkward predicament for universities, which then find themselves in somewhat of a dilemma. On the one hand, industry and government want to see more institutions of higher education directly serving the community and the nation. On the other hand, academia seeks to continue with its pursuit of new knowledge through research and the delivery of education and training for student entry into the real world of work. This classic divide between the two parties overshadows their potential for effective cooperative understanding and mutual reinforcement towards achieving shared aspirations. UNIMAS, in its research objective recognises the advantage, indeed the imperative, for continuing and extending opportunities for cooperation with industry.

Along with this shift, valid concerns have been expressed about the erosion of institutional integrity and academic freedom. These include issues of confidentiality and conflicts of interest, in addition to ownership and intellectual property rights. Reservations have also been expressed about university-industry links that may compromise a university's essential function of preparing students for the professions. However, we at UNIMAS uphold the legitimacy of our role in professional education and training.

In this context, UNIMAS has creatively addressed the professional and ethical issues that directly affect academia. These include the amount of time each member of staff commits to teaching, research and consultancy. Our quest for applied research, however, has not negated our commitment to basic research and its fundamental role in the pursuit of knowledge and academic excellence. We are convinced that basic research is an invaluable asset in the promotion of industrial innovation and development to advance a country's competitive edge.

In forging meaningful university-industry links, UNIMAS has been prudent in two critical areas. First, our openness and sensitivity to the needs of industry does not compromise our overriding mission and objectives. Second, our academic staff and students who are involved in collaborative ventures with industry should both gain from, and contribute to the real world of work. This is a shift away from the earlier perception of their being regarded solely as "human capital". Industry, in turn has also recognised that a dynamic workforce is one which is continually widening its horizons and keeping up with new developments to meet ever-evolving situations and needs.

Mindful of the mutual advantages that can be reaped from the university-industry partnership, we at UNIMAS have widened our scope and provided opportunities for industry to share our resources and expertise, while we in turn, can benefit from the practical experiences and market-driven philosophy of industry. The classic divide *can* be bridged.

Gearing Towards *The World of Work*

Yusuf Hadi

Universities today can no longer afford to just be ivory towers, pursuing knowledge solely for its own sake. Although this will continue to be one of the cornerstones of tertiary institutions, universities cannot ignore their social and economic responsibilities in playing a more direct role in complementing national development strategies. This is a marked paradigm shift for universities, as the world of work - the 'vocational' element - was in the past often regarded as somehow 'less intellectual' for tertiary curricula. Nevertheless, the application of knowledge, instead of being an end in itself, is becoming an acceptable form of scholarly endeavour alongside teaching and research. This more practical focus is a reflection of the growing realisation of the role of the higher education sector in the new dynamics of techno-industrial development.

The massification of higher education in pursuit of this goal has introduced elements of competition into a sector that has hitherto been relatively sheltered. Now, universities are increasingly expected to meet new needs and to compete for students. This shift towards the market needs has focused attention on issues such as a variety of customers and their respective needs - contemporary jargon previously unheard of in academic circles, except perhaps for business schools.

Nevertheless, education has to keep pace with the life and growth of society, and is altered both by changes imposed on it from the outside and by transformations in its internal structure and intellectual development. Global technological and socio-economic transformations are redefining the nature of work. In contemporary society the most noticeable changes have been brought about by three major aspects of work - the things people do, the ways people do things, and the ways people think about work.

None of these in themselves presents much of a problem if the changes in question are occurring slowly or at a steady pace. The speed of change in the world of work, especially in recent years has been phenomenal. This has had a major impact on the general perception of what tertiary education should deliver. In contemporary society, the nature and significance of knowledge is evolving rapidly. This has necessitated that established as well as new and emerging disciplines must cut across the boundaries of traditional fields and subjects, while having a practical outlook on the application of these disciplines. Universities therefore have a critical role to play in developing and realising a country's potential.

Contemporary institutions of higher learning should provide both education and training; education develops the person, their analytical and critical abilities, while training imparts job-specific skills to enhance task-oriented performance. At its extreme, training can be a mechanistic process emphasising uniformity and predictable responses to instruction. Education, however, is a more holistic process stimulating diverse responses in the individual.

Universities today have to integrate training into a broader concept of education. The modern work environment demands that students should be able to apply their knowledge and experience, directly or indirectly, in a work context.

The contemporary work environment requires a variety of conceptualising skills which include:

- Abstraction - the capacity to order and make meaning of the massive flow of information
- System thinking - the capacity to see the parts in relation to the whole to discover why problems arise and how components are linked together
- Experimental inquiry - the capacity to set up procedures to test and evaluate alternative ideas
- Collaboration - the need for active communication to get a variety of perspectives, as well as the capacity to create consensus when that is necessary

As a young university, UNIMAS is fortunate not to be hampered by the legacy of the traditional academic-industry divide. Indeed one of the critical success factors identified for UNIMAS is the university-industry relationship. We are committed to the challenge of preparing our students for continuously learning and adapting in a world of rapid change. Our task is to equip students not with specific time-limited skills but with the fundamental competence and confidence to go on learning and adapting throughout their working life.

Our industrial training programme exposes our students to the rigours of the work environment. This programme provides them with the professional and social contexts in which to apply their knowledge and to develop in them an appreciation of the complexities of their field of specialisation, and on that basis require them to be sensitive, flexible and adaptive to future changes.

This programme also acts as a feedback loop to enable UNIMAS to continuously re-examine our academic programme in the light of changes of the work environment itself. In our quest to position ourselves be competitive in the contemporary academic environment, ivory towers need to be more open to change and responsive to market forces.

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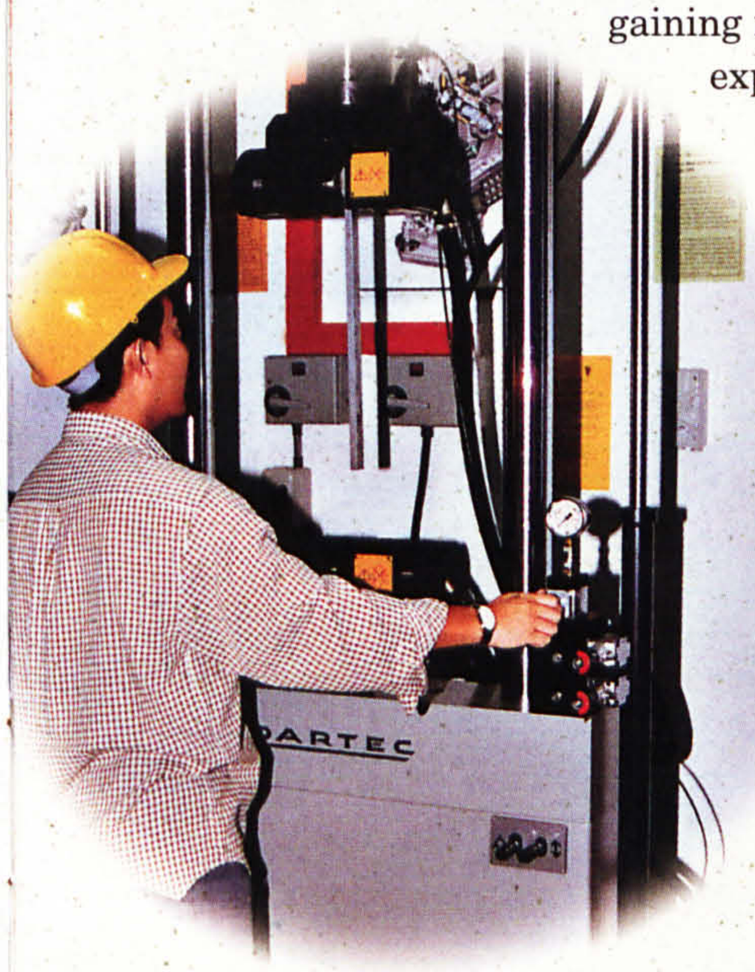
Beyond Industrial Training:

Malaysian Teaching Company Scheme (MTCS)

UNIMAS is a participant in the MTCS initiative coordinated by the Ministry of Science, Technology and Environment. This scheme provides financial support toward employing and supervising high caliber graduates on projects designed to improve a company's performance through the introduction of the latest methods and technologies available in universities.

The scheme's objectives are

- to provide graduates with experience in industry
- to provide mobility for existing company staff while gaining relevant research experience
- to provide university staff with opportunities to work with industrial partners
- to allow companies to benefit from the latest methods and technologies that are available at institutions of higher learning
- familiarity with state of the art equipment which can test the application and refinement of academic ideas in an industrial environment



KOLEKSI ARKIB
UNIMAS

Benefits to the University

- contact with the corporate world will help imbue academics with a sense of reality as to what is needed and what is relevant
- working with practical projects will give academics an idea of how to redesign their work into practical applications having commercial value
- help extend the training capability of academics beyond the classroom and into manufacturing and operating facilities in companies

Benefits to the graduate/participant

- the challenge of working on demanding tasks which have real commercial and time constraints
- provides a route to successful careers in industry and commerce
- an opportunity for accelerated career advancement
- competitive remuneration for work on specific projects in the company
- MTCS projects can be incorporated into studies for higher degrees

Benefits to the Company

- gain access to scientific technology and relevant facilities of the supporting institutions
- provide opportunities to enlarge the company's research and development activities and keep abreast of new technologies
- gain access to specialist skills which will improve company performance
- provide an opportunity for the company to pick bright graduates, known for their track record and involvement in research to be employed

Conservation and Industry:

Cooperation not Conflict

Steve Oakley

Conservation is usually perceived to be the sworn enemy of industry and urban development. Nothing could be further from the truth; the tide is changing and many of the moghuls of industry are becoming concerned environmentalists. More and more industries are realising that prevention is better than cure and there is a gradual development of a "Green movement" within even the most polluting industries. As a senior representative of Petronas puts it, "My family and I also want to swim in the sea and walk on the beaches". One of the ways industrial giants can help prevent "accidents" is through environmental awareness, not simply in terms of knowing what environments are, but in terms of promoting the idea that without the wild and green places, this world would be a much poorer place. No sane person would suggest that we don't need petrochemicals or oil, but we would all agree that we want oil in the barrel, not on the beaches. And, from that simple realisation comes the impetus for mutually beneficial links between industry and conservation.

The oil and petrochemical industries have the potential to pollute huge areas of the world. A single litre of spilt petrol will poison one million litres of underground water. Carbon tetrachloride lasts for 1800 years in the atmosphere. Cod liver oil capsules are heavily laden with CFC poisons. Facts like these make us gasp. We are so used to the macro spills of tonnes of heavy oil that we have never been told of the insidious nature of the liquids we take for granted. We have been polluting the world for too long.

There is an increasing awareness that the world is finite and that discarded wastes don't just go away. The hole in the ozone layer and global warming are dramatic reminders of the effects of man on natural ecosystems. The rebirth of conservation and recycling of discarded items is a sign that ordinary people are becoming more environmentally aware. It's still an uphill struggle but the hill is less steep than it once was. As a result of this environmental awareness, both within the work force and within the population at large, segments of the petrochemical industry are becoming concerned about public image and are cleaning up their act. Industry is proving that it is capable of a considerable amount of self control. Deliberate spills are rare, and the safety measures instigated by "newly green" personnel reduce the risk of accidents. Of course accidents can occur and it is in accident damage-control that IBEC can offer assistance to giant companies like Sarawak Shell Sdn. Bhd.

The Shell Chair in Environmental Science was sponsored by Sarawak Shell and its first task has been the development of a Coastal Zone Management Plan (CZMP) for Sarawak and Sabah. This CZMP will be used by the state governments for integrated multi-sector planning and will include recommendations on protected regions as well as showing the areas of conflict between developing industries and the resource-based traditional industries like fisheries. By mapping the coast in relation to environmental sensitivity, the two aspects of conservation and public image can be addressed together. IBEC as a conservative environmental group can help to ensure that the correct equipment is in the right place at the right time when petrochemical accidents happen. To be prepared is, in itself, a step towards minimizing damage to the environment.

The CZMP is not just about oil spill impact reduction. From the conservation point of view, it makes much more sense to develop protected areas from a position of knowledge rather than from simply looking at a map. The initial part of the CZMP is the development of a database of *what* is *where*; a simple biological stock inventory. To find out what is living on various parts of the coastal zone requires a multi pronged approach - from satellite images and advanced GIS-based computer systems to fisheries and photography. Some aspects of the coast, for example, the fisheries are well known. For instance, there are gaping holes in knowledge and understanding of the processes that maintain fisheries. IBEC works closely with various groups to try to identify problems of environmentally destructive fishing. There is serious overfishing on the coral reefs, as fishermen have illegally resorted to using dynamite or cyanide to catch the few remaining fish from the reefs. The fishermen get the short-benefit of good catch at the long term expense of a damaged reef.

It is almost impossible to solve the problems of the coastal seas from a limited knowledge base, so many aspects of the biodiversity inventory for the CZMP can only be studied from under the sea. In 1996, a four month joint program between UNIMAS and the University of Aberdeen detailed the biodiversity and ecological processes that occur on a remote reef in the middle of the South China Sea. The expedition was supported by a number of commercial sponsors and government agencies and its findings will be used as a management plan when the reef is declared a national park.

Bringing the University Closer to Industry

Murtedza Mohammed & Ted Morten

One of the aims of UNIMAS is to forge greater cooperation between the university and industry. This is the instrumental role of the Centre for Technology Transfer and Consultancy (CTTC). The Centre is the mechanism for exploiting and transferring technology and expertise to industry. It undertakes research and consultancy projects, as well as education contracts. It supports and contributes to the development of local industry within its resources and means. CTTC provides academic staff with direct experience and involvement in industry, thereby enhancing their teaching. It assists UNIMAS to optimise the use of its facilities, academic staff, researchers and other resources through its activities.

The traditional research role of universities has been extended to encompass facilitation extending beyond consultancy. This extended role is realised through the coordination of project teams. These have both university and external members, i.e.expertise from within and outside the university. Such facilitation therefore includes outsourcing expertise, providing facilities and logistical support.

Among the major consultancy projects undertaken to date is the largest environmental impact assessment (EIA) conducted in Malaysia. This project, commissioned by Ekran Bhd assessed the possible effects of the the Bakun Hydroelectric Power Project on the physical, biological and human environment. Other major projects include an EIA study for a natural gas pipeline in Sabah, commissioned by Petronas, and the Miri Resort City development project, commissioned by Samling Corporation.

CTTC also oversees the implementation of the UNIMAS Student Placement Scheme. The Centre liaises with industry to obtain places for our students to experience appropriate industrial training.

The UNIMAS Research Park, detailed in the next article, is our flagship venture, encapsulating the universities' commitment to the philosophy and implementation of university-industry links.

CTTC offers Contract Education

In response to requests from both the public and private sectors, UNIMAS now offers educational packages in management and technology. These educational packages, delivered through training workshops and taught courses, lead to the award of a certificate, a postgraduate diploma, or a Master degree, where applicable.

Among the educational packages available are the following:

MSc programme in Advanced IT offered in collaboration with the Asia Pacific Institute of Information Technology (APIIT). This modular programme is delivered through the Internet and the first batch of students is expected to graduate in August 1997.

Postgraduate Diploma in Human Resource Management offered through Institut Aminuddin Baki (IAB). This programme will be upgraded to an MSc programme to be offered through the Centre for Modern Management (CMM) during the June semester, 1997.

"Special Examination and Courses for Admission to the Service Scheme of Technical Assistants (Civil) J5 in JKR Sarawak" is a contract education programme offered through CMM.

Certificate in Environmental Management also to be offered through CMM and the first intake will be in July, 1997.

UNIMAS a New Tenant in Technology Park Malaysia (TPM)

Murtedza Mohammed

In order to make its presence felt and remain in the mainstream of R & D pursuits in Malaysia, UNIMAS proposes to operate a R & D and training centre at the Technology Park Malaysia (TPM) located at Bukit Jalil, Kuala Lumpur.

By virtue of TPM's location within the proposed Multimedia Super Corridor, UNIMAS should then be able to further strengthen its education and research activities and remain the best networked university in Malaysia. Through the UNIMAS TPM 'auxiliary' campus, remote researcher-to-researcher and client-to-researcher /teacher consultations would be made possible as the required networking facilities would be installed at least at two locations i.e. at the UNIMAS Kota Samarahan campus and UNIMAS TPM site. It is hoped that such a mode of cyberspace accessibility can maximise utilisation of knowledge and technical resources at UNIMAS.

Our Window To Malaysia's Multimedia Super Corridor

Upon considering UNIMAS application and justification, TPM has accepted it as one of the few selected tenants of the Park. Thus, at TPM and through both conventional and virtual modes, UNIMAS shall pursue and incubate a number of selected R & D and contract education projects. Activities at the UNIMAS TPM campus will include:

R & D in Software Technology such as research in Industrial Software Engineering with a focus on Rigorous Approaches to Software Construction; research in Hypermedia systems with a focus on interactive distributed multimedia applications. This includes the Virtual Campus and Virtual Science Park projects; and also contract R&D which includes the ongoing project entitled "Design and performance study of alternative Distributed Simulation Architectures on Unix platforms".

Health & Community Medicine such as molecular systematics and fingerprinting; peptide synthesis and amino acid sequencing; glycobiology and glycolipid analysis and synthesis; and biosensor design and testing.

At TPM, UNIMAS researchers will be able to extend the on-going R & D activities at UNIMAS Kota Samarahan campus. New R & D initiatives are planned under the more conducive environment of TPM.

Applied & Creative Arts. Activities to include Production House for photographic and A/V documentation; industrial design; and training on scripting, production, post-production, media-law etc. The present and potential clients in the area of applied and creative arts include Akademi TV3, Akademi Filem Malaysia, FINAS, Measat and others.

Technology Transfer & Consultancy Services. At the UNIMAS TPM branch, it is expected that the contract research, general consultancy, contract education, and innovation and technology marketing services presently managed by the Centre for Technology Transfer & Consultancy at the Kota Samarahan campus can be extended to a wider clientele.

Out of the Lab and into Industry

Murtedza Mohammed

Undeniably, a nation's industrial development can be optimised through the efficient use of resources to build up a reservoir of expertise and specialised facilities. Traditionally the intrinsic role of universities has been the advancement of knowledge, the stimulation of a spirit of inquiry and the preparation of professionals for industry. While these retain their importance, the university is increasingly being looked upon to contribute to the nation and the region in economic terms.

Universities need to interact with industry to augment mutual expansion and development and such a synergetic partnership can be established through the concept of the Research Park. From the university's perspective, a Research Park acts as a reservoir of expertise and as a provider of infrastructure facilities to support Research and Development (R &D) activities much needed in today's business world. In realising this role, the university continues to enhance and expand its traditional functions of teaching-learning, research and services.

From the other perspective, industry gains access to a conducive and cost-effective environment for incubatory, exploratory, and applied research. This is particularly pertinent to young, technology-based small companies as they will benefit from technical assistance and facilities which are usually beyond their means.

Undoubtedly, universities are centres of excellence for technology and research. Yet, even entrepreneurially minded academics might not have the business acumen to take the products of R & D to the market. The activities of these academics could be enhanced through smart partnerships with industry. The inherent strengths of industry lie in the realm of knowledge of the market and competition, quality assurance, business planning, financial control and strategic management decision making - all of which are essential to maintain an edge in today's highly competitive business environment.

The Research Park enables a university to establish a path for academics to put their ideas into practice in industry; thus, allowing staff the opportunity to contribute directly to the growth of industry. In addition, today's universities can no longer afford to be financially dependent on traditional sources of income. Thus, income generation has increasingly become an important consideration and Research Parks also provide the means for universities to generate income, particularly through the leasing of facilities, i.e. information services, buildings, and equipment, as well as the licensing of technology to their tenants.

Collaborative efforts built on the collective strengths of both parties can culminate in the setting up of companies which capitalise on these university-industry links. The UNIMAS Research Park is a realisation of this model of university-industry links.

In 1996, UNIMAS officially accepted the tenancy of two companies: Venture Technologies Sdn Bhd (a medical biotech-based company) and Consys Engineering Sdn Bhd (an IT/ Electronic engineering-based company). Both have embarked on R&D activities in premises provided on the present campus.

The University's Research Facilities At Your Service

The range of research facilities on campus which are now available to industry, includes:

Instrument for Chemical Analyses such as Gas Chromatograph-Mass Spectrometer (GC/MS), High Performance Liquid Chromatograph (HPLC), spectrophotometers (FT-IR, UV/UV-Vis, Luminicence) Atomic Absorption Spectrometer (AA), Total Organic Carbon Analyser (TOC) and electrophoresis instruments.

Specialised Laboratories such as Material Testing Laboratory (for soil, concrete and aggregate testing), Environmental Laboratory (for air and water quality monitoring and analyses), Wireless LAN, Computer Aided Engineering (CAE) Laboratory, Telecommunication Research Laboratory and Recording Studio (three camera Beta-High Band Broadcast Quality).

Computing Hardware. High-end graphical workstations for Software Development, Computer Graphics, Image Processing, Multimedia Systems, GIS and Remote Sensing, Digitizers, Plotters and Scanners for Multimedia Systems, Image Processing, Remote Sensing, GIS and CAD.

Software. Available software on campus include Compilers (C/C++, Prolong, Fortran), Tcl/Tk, Open GL and Image Vision for Software development; Softimage for 2D/3D graphic design, ER-Mapper for Remote Sensing, Arc/Info for GIS application development, Raise for Software Engineering development and Authorware for multimedia authoring.

Resource Centre. Full access to UNIMAS Centre for Academic Information Services (CAIS). CAIS is equipped with over 50,000 titles of publications in hardcopy, AV and electronic media. CAIS is operating a fully integrated library system (VTLS) which can access on-line public access catalogue (OPAC).

Multimedia Centre. Full access to the Centre For Applied Learning And Multimedia (CALM). CALM offers a 2MB videoconferencing system with a full range of AV equipment integrated through the schoolnet system.

A New IDEA in UNIMAS

Halimahtun Mohd Khalid

Changing patterns of work and the work environment have an enormous impact on day to day living. The need for a 'good fit' between people and the things they use has never been greater. The science of ergonomics, from the Greek 'ergon' meaning work and 'nomos' meaning study, seeks to promote efficiency of people in their work environment. It uses information about human abilities, attributes and limitations to design better equipment, tasks and workplaces that takes these human variations into account.

Undoubtedly, the industrial requirements and societal demands of the twenty-first century are expected to be more complex. Thus, solutions will necessitate a macroergonomics approach which integrates various multidisciplinary techniques. However, not all technological solutions which are relevant to developed or advanced countries can be transferred directly to local situations. Cultural differences and application settings play a major role in determining the success of technology transfer.

Malaysia thus needs to build its own design and ergonomics capabilities so as to be less dependant on foreign solutions. However, these capabilities are almost non-existent in the country as human factors research and development (R & D) is yet to be sufficiently realised within industry.

The establishment of UNIMAS' Institute of Design and Ergonomics Applications (IDEA), is timely as it will catalyse the development of design and ergonomics capabilities to support Malaysian industry. The Institute aims to become a prime resource centre in Southeast Asia for research, information and training in ergonomics and design.

Among the factors which motivated the setting up of IDEA is Malaysian's rapid economic growth which is expected to continue well into the next century. To sustain this growth, the country needs to undertake various steps to enhancing productivity, competition, innovation and creativity in all sectors of the economy, especially in manufacturing, construction and services. Against this scenario, the role of design is apparent in increasing industrial competitiveness. But this comparative advantage is seldom realised, as insufficient emphasis is placed on integrating the design process into business and industrial planning strategies. Also the relationship between industrial design practices and ergonomics is not well understood. Both are inextricably linked in generating designs which meet user requirements, but generally, society is less aware of the value and potential of Malaysian design capability and skills. As Malaysian industry clearly does not possess a design culture, the challenge is therefore to raise the status and profile of Malaysian design on the local and international scene.

Ergonomics or human factors knowledge thus contributes to the design process by providing theories, knowledge, methods and data in the generation of effective, productive and safe design creation for human use.

UNIMAS offers the best platform for IDEA's implementation, given its available knowledge specialisms and expertise which can be optimised through specific R & D activities. Through quality scientific research and consultancy, the institute aspires to be an internationally renowned resource for ergonomic design solutions to global problems. Through education and training initiatives, these capabilities can then be applied to industry.

IDEA aims to conduct R & D projects in niche areas like product design, human-computer interaction, occupational health and safety in co-operation with industry and various other organisations within as well as external to UNIMAS. The Institute will also offer academic programmes and professional training, aimed at enhancing industrial awareness of the importance of design and ergonomics. In addition, consultancy services will be offered to local vendors through transfer of technology activities, particularly in user-system interface design, and the provision of ergonomics intervention programmes. IDEA will also exploit various networking mechanisms in establishing internal and external relations to support staff exchange, as well as the accreditation process of academic programmes.

The establishment of IDEA, the first of its kind in this region, will contribute to the realisation of the National Vision of developing and sustaining a new tradition of design culture that is truly Malaysian.

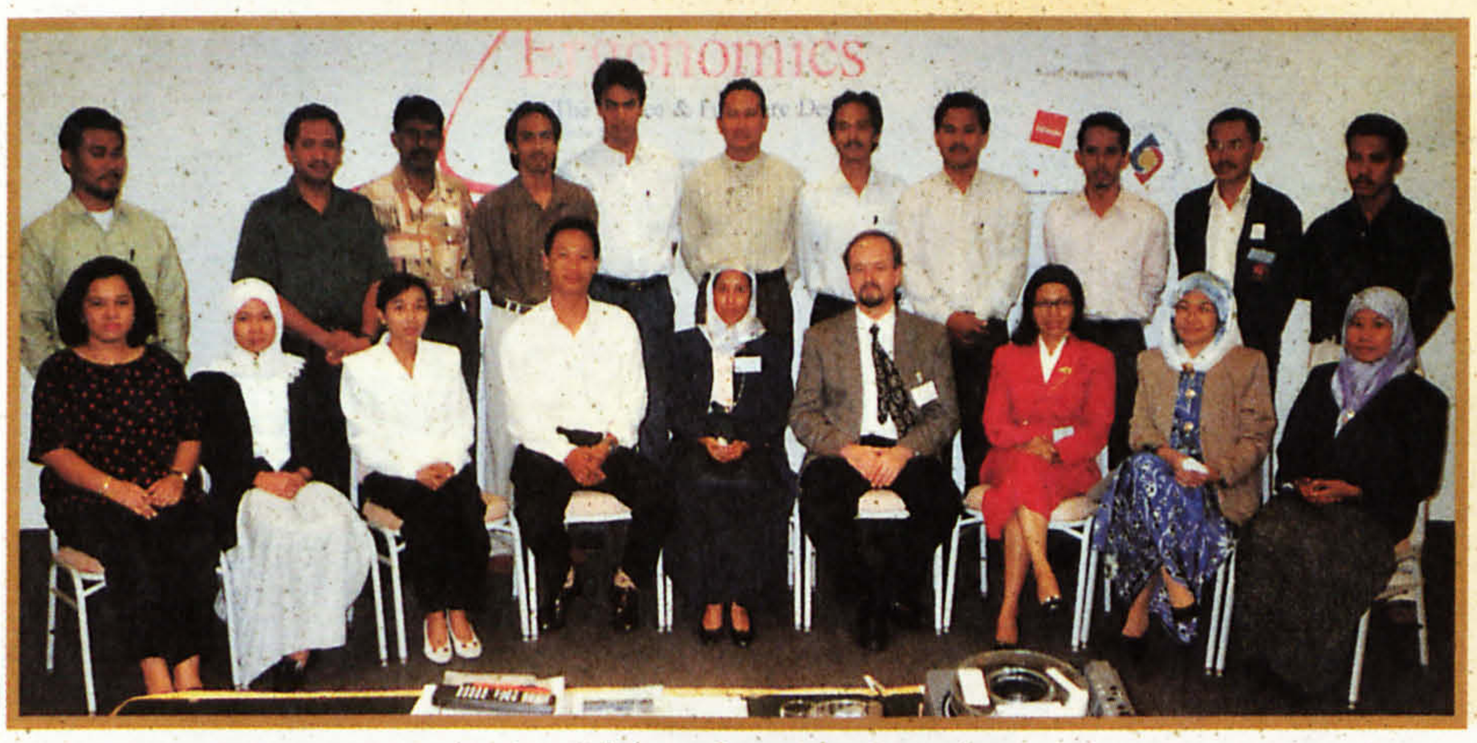
Ergonomics in the Office and Furniture Design

11 - 12 March 1997

The furniture industry in Malaysia and in the ASEAN region is seen as one of the prominent potential contributors to the region's growing economy. Presently, however, the industry can be said to be very localised, that is for domestic consumption only, with minimal presence in the export market. Thus, in order to create a niche in the international market, the design of furniture must meet established ergonomic standards. This would ensure maximum usability, and thereby promote competitiveness with other well-established world-wide furniture manufacturers.

The two-day intensive course-cum-workshop was aimed at introducing the basics of office and furniture design from an ergonomics perspective. Seventeen participants comprising leading furniture manufacturers, standard developers, industrial designers, architects and academics were introduced to human factors issues in the work environment, and how could these affect the design and arrangement of furniture. The course, jointly organised by the Institute of Design and Ergonomics Application and Malaysia Design Council was held at the Malaysia Design Centre in Kuala Lumpur.

An observational study of various office tasks and furniture configurations was conducted at the New Straits Times Press, Jalan Riong, Kuala Lumpur. This practical experience in anthropometric measurement value adds to the theoretical knowledge gained on the first day. Both Professor Martin Helander of Linköping Institute of Technology, Sweden, and Assoc Prof Dr Halimahtun Mohd Khalid, IDEA, who conducted the course were impressed with the quality of design solutions presented by participants at the end of the workshop. An outcome of the course is to develop a Malaysian anthropometric database to support product design including office, home and school furniture.



CONFERENCE REPORT

The Faculty of Engineering, Institution of Engineers Malaysia (Sarawak) and Public Works Department recently hosted a three day conference on *Recent Advances in Soft Soil Engineering*. The conference brought together researchers and practitioners from 12 countries to share and discuss new and innovative ideas in an area that has been relatively unexplored in research, yet is a major problem for practitioners in the field.

Papers presented at the conference ranged from studies of the fundamental aspects of the engineering behaviour of soft soils to the methods of construction on them. Topics included characteristics of soft soil, testing and fundamental behavior of soft mineral and organic peat soil, engineering analysis and design methods in organic peat soils, construction procedures, application of appropriate technologies, and their impact on the environment.

To further develop and improve soft soils for construction, the conference stressed that trials in the field must be supported by good theoretical research. The viability of construction on soft soils in Sarawak lies in better coordination among all parties involved. A proposal was put forward for the establishment of an *Institute for Soft Ground Engineering* to be based at UNIMAS, was raised at this conference. This institute could be a focal point for coordination, research, development, training and technology transfer among government, academics and industry.

Among the niche areas identified are an inventory of geotechnical databases for soft soils and research into engineering properties and behaviour of soft soils.

Dealing with 'that sinking feeling'

Bujang Kim Huat

Malaysia's booming economy has generated massive construction projects resulting in the opening up of land which at one time was regarded as unsuitable for development. This raises the issue of the viability of peat and organic soils i.e. soft soils for construction.

Approximately 1.6 million hectares or 13% of Sarawak is composed of such soils, concentrated around the state's coastline, where the majority of the population resides. This is a major concern for the state as construction has begun to encroach into these areas. The inaccessibility of the of the state's interior has restricted major construction to the coast.

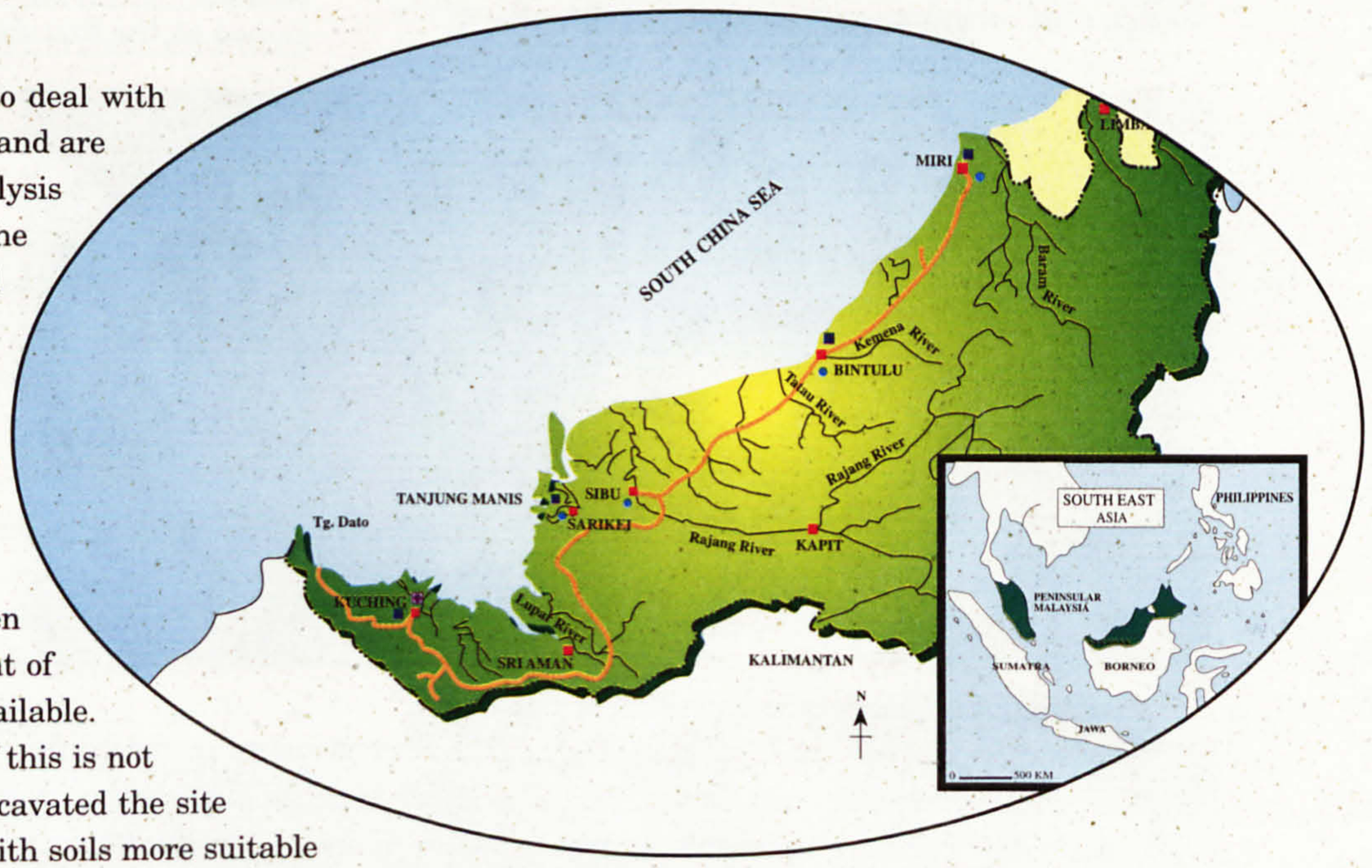
Soft soils are extremely compressible, making them highly unstable when subjected to increased load. These soils develop in low-lying coastal areas where stagnant water has accumulated and where periodic inundation and drying occurs. The soils have a high organic content of decaying plant matter.

Presently, construction methods to deal with soft soils are still in their infancy and are costly and inefficient. Careful analysis of the soil is needed because the actual composition of the soil will affect the choice of construction methods used. Structural instability may occur if soil composition is not correctly assessed.

Currently when a site has been identified as having a high content of soft soil, there are two options available. One is to abandon the site, and if this is not an option, the alternative is to excavated the site and have the soft soils replaced with soils more suitable for construction. The North South Highway in West Malaysia and the new Kuala Lumpur International Airport (KLIA) are prime examples where the second option was selected.

The locality of soft soils poses another dilemma, as development of land with soft soils must be balanced with conservation of the environment. Located primarily in environmentally fragile regions of the state, these "wastelands" serve many important functions. Swamps and marshlands are rich in biodiversity and serve important ecological purposes. They impede wave action, disperse flood flow and trap sediments, thus preventing erosion. They also offer biological and biochemical nutrients to plants and wildlife.

Therefore the development of such areas without a proper understanding of the consequences to the ecosystem is a serious issue that has to be addressed. Draining peatswamps, whether planned or unplanned, results in the non-reversible alteration of the properties of the soil. Certain areas of peatswamp are home to rare and endangered species. Populations of gibbon, orang-utan and proboscis monkeys as well as many other protected animal and plant species live in peatswamp ecosystems. While these species might be able to survive



pressure from light logging, intensive draining and reclamation will threaten their existence. The question we must ask, is how we can continue developing to meet our growing needs without encroachment into or destruction of the ecosystem.

Appropriate technology has yet to be developed to overcome these problems. While other countries with similar problems have developed their own solutions, their methods may not be the solution for us. We can only find a locally appropriate solution through further study and research.

Pusat Khidmat Maklumat Akademik
UNIVERSITI MALAYSIA SARAWAK

CAMPUS UPDATES

UNIMAS to set up Virtual Reality (VR) Centre

This Centre will spearhead the university's research and development (R & D) efforts in multimedia technology. It is the first of its kind in Malaysia's Multimedia Super Corridor, and its R & D activities will essentially cater to a range of industries from automotive, manufacturing, building construction, town planning, medical and robotics to entertainment.

The VR Centre will also be involved in product commercialisation, joint education/ training programmes, staff development, consultancy and technical services. It will receive support from the university's Faculty of Information Technology, the Institute of Software Technology and the Institute of Design and Ergonomics Applications.

Memorandum of Understanding signed between UNIMAS, NSTT and Prosolvia AB

UNIMAS together with New Straits Times Technology Sdn Bhd (NSTT) and Prosolvia AB have agreed to jointly undertake projects and collaborate in the field of virtual reality research and development. This partnership will significantly contribute to multimedia development in Malaysia, in line with the country's push toward multimedia technology and producing world class multimedia solutions.

Faculty of Medicine and Health Sciences chosen as WHO Research Centre

The International Working Party, a World Health Organisation (WHO) sponsored research group has enlisted the assistance of the Faculty of Medicine and Health Sciences in a study on global health care. The two stage study involves eleven faculty members. The first stage deals with identifying the health care priorities of Malaysia and matching these with the curricular activities of the faculty. The second stage - a Social Accountability Project - will be conducted by surveying the university administrators, staff and students, as well as members of the community.

Hiroshima Institute of Technology Polytechnic (HITP) and UNIMAS foster closer ties

HITP and UNIMAS have signed a Memorandum of Understanding to foster collaborative relations and develop technical interchange through joint academic and research programmes. HITP is very active in the fields of electronic, civil and mechanical engineering and surveying. An immediate result of this collaboration is the placement of seven UNIMAS students on industrial training programmes in Hiroshima.

Experimental Artworks

Staff and students of the Faculty of Creative and Applied Arts held two exhibitions of highly experimental artworks in Kuala Lumpur. *Explorasi* - a display of mostly digital, electronic-based works, is an attempt to introduce a new dimension of media and digital technologies in the production and appre-ciation of fine arts. *Hyper-view* - a solo exhibition by Hasnul Jamal Saidon, featured computer-animated and interactive CD-ROM art forms.

French Ambassador's visit

Monsieur L'Ambassadeur de France, Edouard Braine discussed the possibility of student-staff exchanges between UNIMAS and French Universities. His donation of books was most appreciated - perhaps he was impressed by our French student's serenade at his reception!

International Advisory Panel for IDEA

UNIMAS has appointed seven international experts for its Institute of Design and Ergonomics Applications (IDEA). They are:

Professor Martin Helander of Linkoping Institute of Technology, Sweden

Professor John Long of University College London, UK

Professor John Wilson of the University of Nottingham, UK

Professor Waldemar Karwowski of the University of Louisville, USA

Professor John Kreifeldt of Tufts University, USA

Professor Tom Leamon of Liberty Mutual Insurance Company, USA

Asst Professor Dr Ravindra Goonetilleke of the Hong Kong University of Science and Technology, Hong Kong.

International Visitors

STRI, Sweden
Eskil Albertsson
University of Michigan
Albert Hermatin
Dept. of Statistics, Singapore
Paul Cheung
National University of Singapore
Angelique Chau
University of Plymouth, UK
Dr Gordon Hanley
Dr Peter Jagodzinski
Hiroshima Institute of Technology
Fumio Miharazume
Mamon Isuzu
Prosolvia AB, Sweden
Dan Lejerskar
Michael Jacobsson

KOLEKSI ARKIB
UNIMAS

Staff News Updates

We welcome

Institute of East Asian Studies
Professor Michael Leigh

Centre for Language and Communication Studies
Professor Shawaluddin Anis
Assoc Prof Dr Jamali Ismail
Judith Warren
Peter Cullip

Institute of Biodiversity and Environmental Conservation
Assoc Prof Dr Stuart Davies

Institute of Software Technology
Mohd Abul Basher

Faculty of Medicine and Health Sciences
Dr John Anthony Ross
Dr Yap Tuan Gee
Dr Don Wortmann

Faculty of Resource Science and Technology
Dr Sepiah Muid
Zainab Ngaini

Faculty of Social Sciences
Christina Misa Wong
Simon ak Andrew

Faculty of Cognitive Sciences and Human Development
Hong Kian Sam
Julia Lee Ai Cheng
Abg Ekhsan Abg Othman
Jeanine Wortmann

Faculty of Economics and Business
Masita Hassan

Faculty of Information Technology
Edwin ak Mit

We congratulate
on the award by His Majesty The King

Prof Ghazally Ismail
Johan Mangku Negara (JMN)

Prof Yusuf Hadi
Johan Mangku Negara (JMN)

Prof Razali Arof
Johan Setia Mahkota (JSM)

Prof Zaidah Abd Razak
Kesatria Mangku Negara (KMN)

Prof Mary Jane Cardosa
Kesatria Mangku Negara (KMN)

Prof Zahran Abd Halim
Kesatria Mangku Negara (KMN)

Assoc Prof Dr Halimahtun Mohd Khalid
on her appointment as Director, Institute of Design and Ergonomics Application (IDEA)

Professor Michael Leigh
on his appointment as Director, Institute of East Asian Studies

Professor Shawaluddin Anis
on his appointment as Dean, Centre for Language and Communication Studies

We bid farewell to

Dr Ramaswami Harindranath
Sabina Teuteberg
Paul and Julie Herriots

Conference and Seminar Announcement

Environmental Issues & Regional Needs Workshop
co-organized by BIOTROP, Ministry of Education, Ministry of Science & Technology and UNIMAS
16 - 19 June 1997

Seminar on Technology-Assisted Teaching and Learning in Universities
in association with UNIMAS and The Association of Southeast Asean Institutions of Higher Learning (ASAIHL)
11 - 12 August 1997

Course Design Using Interactive Multimedia for Distance Learning Workshop
in association with the Centre for Open Learning, UNIMAS.
13 - 15 August 1997

Further Information
Prof Murtedza Mohammad
e-mail: ted@cttc.unimas.my
fax: ++6082 672303

National Conference-Workshop on Industrial Relations in Malaysia: Present and Future Challenges
3 - 4 November 1997

This conference seeks to provide a common meeting ground by which key representatives from academia, government, employers and workers can raise and address contemporary issues in industrial relations in Malaysia. Its specific objectives are to :

- assess the state of industrial and labour relations in Malaysia
- identify contemporary issues and problems
- formulate a research agenda for industrial and labour relations
- assess and recommend improvements in the teaching of industrial relations
- initiate the organisation of a network of academics, scholars and practitioners together with other interested parties in the field of industrial relations.

Further information
Conference Secretariat
Faculty of Social Sciences
UNIMAS
94300 Kota Samarahan, Sarawak, MALAYSIA
e-mail: ara@fss.unimas.my
fax:++6082 672305

ASEAN Ergonomics 97 Conference
co-organised by SEAES Ergonomics Society, IEA Ergonomic Association and UNIMAS
6-8 November 1997

Further Information
IDEA
URC:http//www.asean 97.unimas.my
email:asean 97@unimas.my
fax:++6082 572094

International Conference on Computers in Education (ICCE)
2 - 6 December 1997

This conference is a forum for innovative responses to the challenges of technology-enhanced education for the 21st century, especially for the Asia-Pacific region. ICCE is concerned with the current state of the art, and serves as a reference for future research as well as the real-world deployment of educational technologies.

Further information
Secretariat ICCE '97
Faculty of Information Technology
URL: http://www.icce97.unimas.my
e-mail: icce97@fit.unimas.my
fax:++6082 672301